- $\arg\left(1-i\sqrt{3}\right) \equiv \theta \ [2\pi]$

$$\left|1-i\sqrt{3}\right| = \sqrt{1^2+\sqrt{3}^2} = \sqrt{4} = 2$$

$$\begin{cases} \cos\theta = \dfrac{\mathrm{Re}(1-i\sqrt{3})}{|1-i\sqrt{3}|} = \dfrac{1}{2} \\ \sin\theta = \dfrac{\mathrm{Im}(1-i\sqrt{3})}{|1-i\sqrt{3}|} = \dfrac{-\sqrt{3}}{2} \end{cases} \qquad \theta = -\frac{\pi}{3}.$$

① Donc $\boxed{\arg\left(1-i\sqrt{3}\right) \equiv -\frac{\pi}{3} \ [2\pi].}$

$$\underbrace{1-i\sqrt{3}}_{\text{F. Alg}} = \underbrace{2\left(\cos\left(-\frac{\pi}{3}\right)+i\sin\left(-\frac{\pi}{3}\right)\right)}_{\text{F. Trig}} = \underbrace{2e^{-i\frac{\pi}{3}}}_{\text{F expo}}.$$

- $e^{i\theta} = \cos\theta + i\sin\theta$
- $\boxed{|e^{i\theta}| = 1}$, $\boxed{\arg e^{i\theta} \equiv \theta \ [2\pi]}$
- $\arg\left(-e^{i\theta}\right) \equiv \arg(-1) + \arg\left(e^{i\theta}\right) \ [2\pi]$

$$\equiv \pi + \theta \ [2\pi].$$

- $\arg\left(2e^{i\theta/2}\right) \equiv \theta/2 \ [2\pi].$
- $\arg\left(2i\,e^{i\theta}\right) \equiv \frac{\pi}{2} + \theta \ [2\pi]$
- $\arg\left(-2i\,e^{i\theta}\right) \equiv -\frac{\pi}{2} + \theta \ [2\pi]$